

A new species of *Pachycheles* from the Hawaiian Islands (Crustacea: Decapoda: Porcellanidae)

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Abstract.—*Pachycheles attaragos*, new species, is described from two males from the Hawaiian Islands. The species is characterized by a relatively elongated, tufted carapace; carapace sidewalls with a large anterior piece but only a single vestigial posterior fragment; subequal chelae with a distinctive carpus margin; and third maxillipeds with an acutely triangular meral lobe.

Although porcelain crabs are well represented in tropical waters of both Indo-Pacific and eastern Pacific waters, only two species, *Pachycheles pisoides* (Heller, 1865) and *Petrolisthes coccineus* (Owen, 1839), are known from the Hawaiian Islands. Here we describe a distinctive new species, which we discovered during examination of the porcellanid collections of the Museum of Comparative Zoology (MCZ). These specimens are part of a large collection of Hawaiian marine invertebrates and fishes made in the mid-1800's by the conchologist Andrew Garrett for the MCZ through the patronage of a wealthy Boston merchant named James M. Barnard (Thomas 1954).

Carapace length (CL) is provided as an indicator of specimen size. Illustrations were created with the approach used by Harvey & De Santo (1996): specimen images were first captured on a Macintosh™ computer with a digital camera connected to a Wild M8 dissecting microscope, then prepared for publication using the programs Adobe Photoshop™ and Adobe Illustrator™.

Pachycheles attaragos, new species

Fig. 1

Holotype.—Male (CL 3.85 mm), Sandwich Islands (= Hawaiian Islands), coll. A.

Garrett, donated to MCZ by J. M. Barnard, MCZ 11851a.

Paratype.—Male (CL 2.90 mm), Sandwich Islands (= Hawaiian Islands), coll. A. Garrett, donated to MCZ by J. M. Barnard, MCZ 11851b.

Diagnosis.—Carapace longer than broad, with lateral margins convex, regions poorly defined. Front triangular in dorsal view, with tuft of setae. Sidewall of carapace consisting of 1 large anterior plate and 1 very small posterior fragment. Basal segment of antennule armed with 2 blunt spines on anteromesial margin and smaller lateral spine on anterior surface. Merus of third maxilliped with pronounced medial lobe, acutely triangular in shape. Chelipeds subequal. Carpus of cheliped with strongly projecting, angular lobe occupying proximal half of anterior margin, and joining distal portion of margin in broad, smooth curve. Manus of cheliped covered with small flattened granules. Walking legs with scattered marginal setae. Telson 5-plated. Second pleopods present in males. Females unknown.

Description.—Carapace (Fig. 1A) longer than broad; regions faintly defined; dorsal surface with posterolateral regions plicate, otherwise punctate; anterolateral regions with scattered short setae, front with tuft of short plumose setae; dorsolateral ridges pronounced; posterolateral margins convex; posterior margin straight. Front triangular

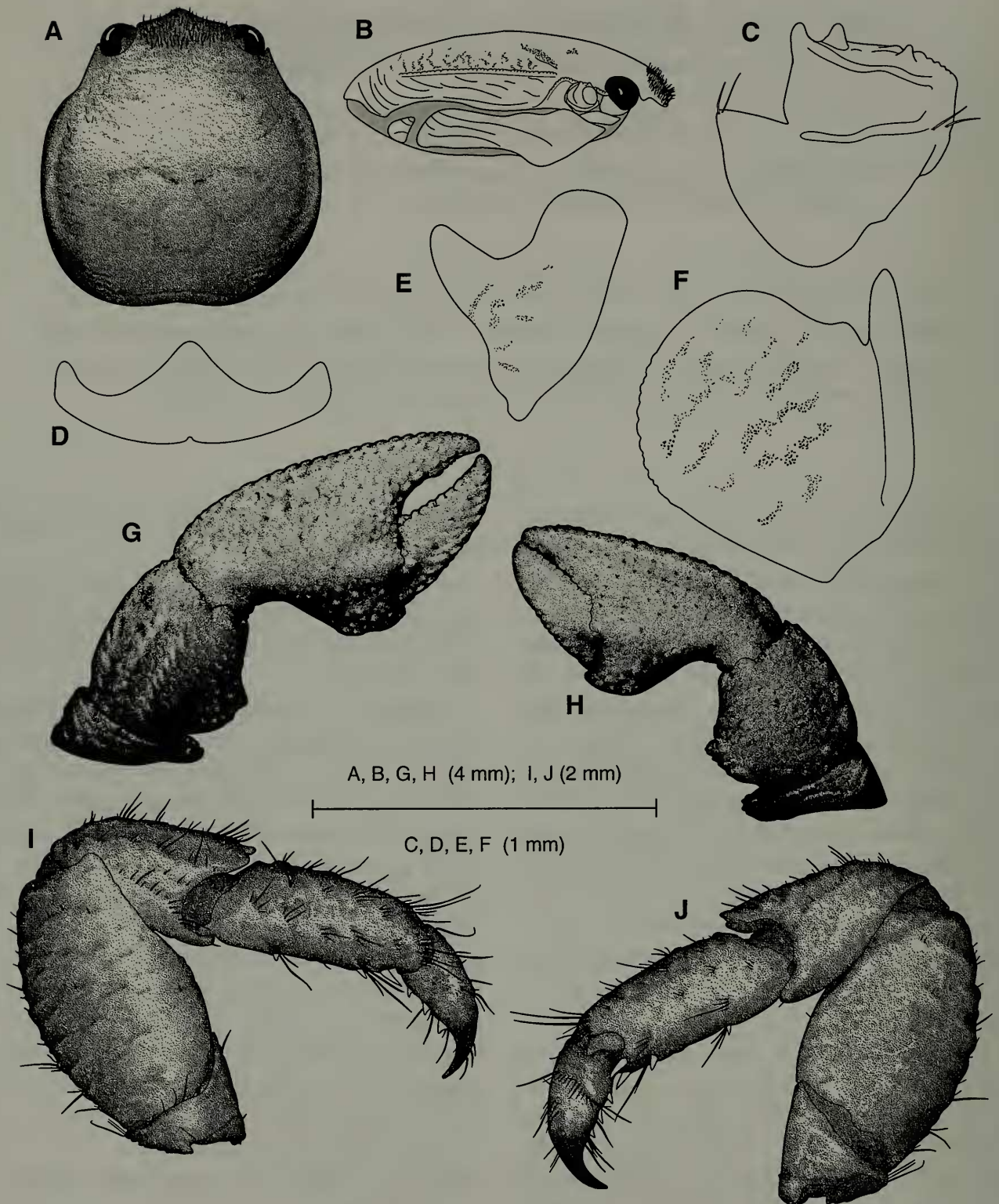


Fig. 1. *Pachycheles attaragos*, new species; holotype male, MCZ 11851a. A, carapace; B, sidewall of carapace; C, basal segment of left antennule, ventral view; D, sternite of outer maxillipeds, ventral view; E, merus of left outer maxilliped, ventral view; F, ischium of left outer maxilliped, ventral view; G, major cheliped; H, minor cheliped; I, third right pereopod, lateral view; J, third right pereopod, mesial view.

in dorsal view, trilobate in frontal view, median lobe projecting farther than lateral lobes. Outer orbital angle produced into acute tooth, inner orbital angle approximately right-angled. Orbits deep and broad,

eyes large. Sidewall of carapace (Fig. 1B) consisting of 1 large anterior plate and 1 very small posterior fragment.

Basal segment of antennule (Fig. 1C) armed with 2 large, blunt spines on anter-

omesial margin (visible from dorsal view); with 1 somewhat smaller lateral spine on anterior surface; ventral surface with 2 transverse granular lines. Second segment of antenna with low crest on anterior margin; third segment with proximal tubercle, low medial crest and distal tubercle along anterior margin. Flagella with short setae.

Outer maxillipeds with trilobate sternite (Fig. 1D), median lobe exceeding lateral lobes; merus (Fig. 1E) with pronounced medial lobe, acutely triangular in shape, with anterior margin entire; ischium (Fig. 1F) with medioproximal angle obtuse.

Chelipeds (Fig. 1G, H) subequal in length, major manus somewhat wider than minor manus. Merus with granular tooth on anterior margin, not projecting as far as carpus tooth; ventral margin of merus distinct, ventrodistal angle granular. Carpus and manus with very short, often vestigial, plumose setae arising in scattered groups from distal side of larger granules; less apparent on major chela. Carpus about as broad as long, with strongly projecting angular lobe occupying proximal half of anterior margin, and joining distal portion of margin in broad, smooth curve; dorsal surface rugose; carpus of major chela with medial and mediolateral longitudinal ridges, each topped with row of enlarged granules. Manus covered with small granules, more pronounced near base of dactyl; posterior margin of fixed finger with 2 parallel rows of granules; dorsal surface of fingers with smaller, flattened granules. Major manus with single medial tubercle on cutting edge of pollex; dactyl with basal tubercle on cutting edge; fingers gaping, crossing at tips, with trace of setae in gape. Minor cheliped with fingers meeting entire length of cutting edge, crossing at tips.

Walking legs (Fig. 1I, J) with scattered setae on anterior margins of merus, carpus and propodus. Carpus with medial longitudinal ridge on lateral surface; with 1 or 2 granules at anterodistal angle. Propodus with 2 distal, 1 subdistal and 1 medial mov-

able spines ventrally. Dactyl with 3 corneous spines on ventral margin.

Abdomen smooth; telson with 5 plates in males (females unknown). Second pleopods present in males.

Distribution.—At present, known only from the type locality; bathymetric and habitat distributions unknown.

Etymology.—From the Greek *attaragos*, meaning small piece or bit, and referring to the unusually small posterior fragment of the sidewall of the carapace. Used as a noun in apposition.

Remarks.—*Pachycheles attaragos* possesses several features unusual within the genus. The shape of the anterior lobe of the carpus of the cheliped is unlike any other species of *Pachycheles*, and strongly resembles that of porcelain crabs in the genus *Allopetrolisthes* (Haig, 1960). The elongate, acutely triangular meral lobe of the outer maxilliped is more similar to certain species of *Petrolisthes* than to other species of *Pachycheles*. Perhaps the most distinctive feature of the genus *Pachycheles*, the fragmentation of the sidewall of the carapace, is barely evident in *P. attaragos*, which has only a single very small fragment posterior to the large anterior plate. Likewise, the difference in size between the major and minor chelipeds of *P. attaragos* is among the smallest in the genus (A. Harvey and E. M. De Santo, pers. obs.).

Pachycheles attaragos is easily distinguished from *P. pisoides*, the only other species in the genus reported from Hawaii. In *P. pisoides*, the carapace is broader than long; the front lacks a tuft of setae and is nearly straight; the posterior plate of the sidewall is quite large (approximately half the size of the anterior plate); and the anterior margin of the carpus of the chelipeds possesses three or four acute, forwardly-pointing teeth.

Pachycheles attaragos appears to be most closely related to three species, *P. pectiniscarpus* Stimpson, 1858, currently known only from Hong Kong; the eastern Pacific *P. grossimanus* (Guérin-Méneville,

1835); and the western Atlantic *P. laeviodactylus* Ortmann, 1892. Characters shared by these species include the tuft of setae on the carapace front; relatively elongated carapace; lack of teeth on the anterior margin of the carpus of the chelipeds; anterior spines on the basal antennular segment; granules along the ventrodistal margin of the merus of the cheliped; and the pattern and degree of setation of the major and minor chelae (Harvey & De Santo 1996).

Acknowledgments

We are indebted to Ardis Johnson (MCZ) for making these specimens available for study. Lu Eldredge provided valuable information about Andrew Garrett. Lara Tolchin and Portia Rollings assisted greatly with the illustrations. This work was supported by a NSF Research Experience for Undergraduates fellowship and the AMNH Crustacean Fund (E. M. De Santo).

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